CLAIMS

1. A database management system, comprising:

a processor configured to provide a neighborhood locking scheme for a neighborhood associated with a data item, the neighborhood locking scheme providing a first locking mode for the data item while creating a second locking mode for the neighborhood associated with the data item.

2. A database management system according to claim 1 wherein the neighborhood locking scheme allows a non-serializable scan of the data item with a first transaction while allowing a non-serializable lock on the neighborhood with a second transaction.

3. A database management system according to claim 1 wherein the neighborhood locking scheme allows a first non-serializable lock on the data item with a first transaction while concurrently allowing a second non-serializable lock on the neighborhood with a second transaction.

4. A database management system according to claim 1 wherein the neighborhood corresponds to free space between tuples in a table.

5. A database management system according to claim 4 wherein the tuples in the table are identified through an index.

6. A database management system according to claim 1 wherein the neighborhood locking scheme includes a neighborhood lock (Xnei) mode that enables a first transaction to lock the neighborhood for inserting a new tuple B but prevents the first transaction from locking a tuple associated with the neighborhood.

7. A database management system according to claim 6 wherein the Xnei mode enables a second concurrent transaction to modify the tuple while preventing the second concurrent transaction from having exclusive rights on the neighborhood.

8. A database management system according to claim 1 wherein the neighborhood locking scheme includes a non-serializable end of scan (Snei) lock mode that allows a first

transaction to only read the neighborhood while preventing the first transaction from reading or writing a tuple associated with the neighborhood.

9. A database management system according to claim 8 wherein the Snei lock mode enables a second concurrent transaction to read and write the tuple and modify the data neighborhood.

10. A method for controlling access to data items in a database, comprising:
identifying a neighborhood associated with a data item in the database;
providing a first set of access privileges for the data item; and
providing a second set of access privileges for the neighborhood associated with the data item.

11. A method according to claim 10 including allowing a first transaction to modify the neighborhood while concurrently allowing a second transaction to modify the data item.

12. A method according to claim 11 including preventing the first transaction from locking the data item.

13. A method according to claim 11 including gaining access for modifying the neighborhood by asserting a neighborhood lock (Xnei) on the data item.

14. A method according to claim 10 including using entries in an index to identify the neighborhood.